BIOLOGY/ENVIRONMENTAL STUDIES 2210 FA — INTRODUCTORY ECOLOGY

Lectures: Wednesday and Friday 11:30 am -1:00 pm in AT 2001 **2017 Outline**

Labs: F1: W, 8:30-11:30 am, CB 3015 F2: W, 2:30-5:30 pm, CB 3015
F3: TH, 8:30-11:30 am, CB 3015 F4: TH, 2:30-5:30 pm, CB 3015
F5: F, 8:30-11:30 am, CB 3015 *Note F3 & F5 are for NRM students only*

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Course Description: Interrelationships of plants and animals with the environment. The distribution and dynamics of plant and animal communities. Aspects of applied ecology and conservation.

Goal of the Course: To develop a basic understanding of fundamental ecological concepts. Having a solid foundation in ecology will help those seeking careers in academia, teaching, environmentally related employment, or those taking virtually any other path in life. Studying ecology is both interesting and challenging in its own right because of the complexity of nature. However, understanding basic ecology is also important for utilitarian reasons. All living organisms (including humans) are completely dependent upon the ecosystems in which they occur. Because the amount of energy or resources that sustains life is limited, actions of organisms can affect other organisms and how ecosystems function. The most important problems affecting biodiversity and human society are ecological in nature. Understanding the basic fundamental principles of ecology is thus essential for making informed decisions to solve these problems.

Required Text: Ricklefs, R.E., R. Relyea, and C. Richter. 2015. Ecology: The Economy of Nature, 7th edition (Canadian edition), W.H. Freeman and Company, New York. ISBN-10: 1-4641-5424-4 ISBN-13: 978-1-4641-5424-9

Required Manual: Brazeau, D. 2017. Introductory Ecology Biol/En St 2210 Lab Manual

Marking Scheme: Midterm 20%, Lab 40% (see manual for details), Final Exam 40%

Other Information: A Desire2Learn (D2L) website is set up for the course. From this site you can ***view or download the lecture material as PowerPoint files***. For organizational purposes, we will closely follow the order of topics as outlined in the chapters of your textbook (Ricklefs 2015). The publisher also has a companion web site that contains chapter outlines which can be downloaded and used as a basis for taking lecture notes. This site also has online tests that you can use to monitor your progress and an interactive module so that you can increase your understanding of the fundamental models discussed in the course. The grade you ultimately earn depends on the level of your effort. A formula for success involves attending all lectures and labs, completing all assignments on time, reading your text, making good notes, and a sufficient amount of studying. Good attendance in lectures is important so that you will not miss the review of the basic topics and any additional information and examples that the instructor provides. Exam questions often come from topics covered during poorly attended lectures. If you must miss a test or exam because of illness or other serious circumstance, contact the instructor or lab technician as soon as possible (documentation may be required). Because of the number enrolled in this course, there will be a large group in the lecture hall. Please be courteous to others in the course. Unnecessary noise and distractions will not be tolerated. Turn cell phones off during lecture. Electronic devices such as laptops or ipads etc.

can be used in class for viewing course materials or taking notes, not for shopping, surfing the web, watching movies or other purposes. This distracts those beside or behind you. Please also refrain from attending lecture or office hours if you have a contagious illness. After you recover, borrow notes from a classmate or ask the instructor to review what you missed. **Midterm: Wednesday 25th October.**

Tentative Lecture Topics Outline:	**Background Reading**
• 1) Introduction	Chapter 1
Part I Life and the Physical Environment	
• 2) The Physical Environment	Chapter 2 & 3
• 3) Adaptation to the Physical Environment	Chapter 2 & 3
• 4) Variations in the Physical Environment	Chapter 4 & 5
• 5) Biological Communities: The Biome Concept	Chapter 6
Part II Organisms	
• 6) Evolution and Adaptation	Chapter 7
• 7) Life Histories and Evolutionary Fitness	Chapter 8
• 8) Sex and Evolution	Chapter 9
• 9) Family, Society, and Evolution	Chapter 10
Part III Populations	
• 10) Population Structures	Chapter 11
• 11) Population Growth and Regulation	Chapter 12
• 12) Temporal and Spatial Dynamics of Populations	Chapter 13
• 13) Population Genetics	Chapter 7
Part IV Species Interactions	
• 14) Consumer-Resource Interactions Predation, Herbivory, Parasitism, Infectious Disease	Chapter 14 & 15
• 15) Dynamics of Consumer-Resource Interactions	Chapter 15
• 16) Competition	Chapter 16
• 17) Coevolution and Mutualism	Chapter 17
Part V Communities	
• 18) Community Structure	Chapter 18
• 19) Succession & Community Development	Chapter 19
• 20) Biodiversity	Chapter 23
• 21) History and Biogeography	Chapter 23
Part VI Ecosystems	
• 22) Energy in the Ecosystem	Chapter 20
• 23) Pathways of Elements in the Ecosystem	Chapter 21
• 24) Nutrient Regeneration in Terrestrial and Aquatic Ecosystems	Chapter 21
Part VII Ecological Applications	
• 25) Landscape Ecology	Chapter 22
• 26) Extinction and Conservation	Chapter 23
• 27) Economic Development and Global Ecology	Chapter 23

BIOL/ENST 2210 -A Brief Questionaire (2017): This is a voluntary anonymous survey for informational purposes only. However, try to answer or at least provide your best guess to the questions below.

1. How many species of living organisms inhabit the earth?_____.

2. T F The "Balance of Nature" is a viable concept.

3. T F Human societies are ultimately dependent on natural ecosystems for their existence.

4. T F "Pristine" natural areas exist.

5. Of all the energy available to support life on earth, what percentage is currently appropriated by humans?

   10 20 30 40 50 60 70 80 90

6. What percentage of earth's terrestrial surface has been altered by humans?

   10 20 30 40 50 60 70 80 90

7. Along what lines are your interests and career aspirations are more closely aligned?

   A) environment, ecology, natural resources B) molecular biology, health sciences, forensics etc.

8. If this course was not required, would you still take it? Yes No

9. In your opinion, what is the most important problem facing human society?

   _____

10. What is your ultimate career goal?

    A) academics (university)
    B) teaching (elementary, secondary)
    C) government employment
    D) health sciences
    E) natural resources industry
    F) other _____

11. What is your major? _____

12. Where do you come from?

    A) northern Ontario
    B) southern Ontario
    C) elsewhere in Canada
    D) another country

13. In what setting have you spent most of your life? A) rural B) suburban C) urban

14. How often do you

camp?	A) never	B) occasionally	C) often
hunt?	A) never	B) occasionally	C) often
fish?	A) never	B) occasionally	C) often
hike?	A) never	B) occasionally	C) often
canoe/kayak?	A) never	B) occasionally	C) often
birdwatch or other natural observation?	A) never	B) occasionally	C) often

Thanks for participating.